

National Aeronautics and Space Administration  
<http://www.nasa.gov>

**Explore. Discover. Understand.**

Marshall Space Flight Center  
Huntsville, Alabama



## Space Laboratories: Science in Orbit

Space Laboratories: Science in Orbit is an immersive approach to education. Full-scale walk-through mock-ups of the Russian Mir and U.S. Destiny laboratories teach the science, engineering, and physical and cultural challenges of conducting space research. DVDs and artifacts help illustrate how on-orbit hardware becomes more sophisticated and how research becomes more focused over time.

The Space Laboratories exhibit offers a little bit of something for everyone interested in space. We build laboratories in orbit because of space's unique, nearly gravity-free environment. In space we can study effects on spacecraft materials and communications. We learn about engineering and operating large systems from the ground. Orbiting science platforms allow astronomers and scientists a clear view above the atmosphere and access to Earth views from low orbit. Skylab, Spacelab, Mir, and the International Space Station have allowed us to answer vital questions about how humans, animals and plants function in space. Over time, we have learned to extend the length of time astronauts can remain in space and to keep experiments there longer. What we're learning helps us design safer and better ways to keep astronauts in space for these durations.

NASA's Marshall Space Flight Center and the U.S. Space & Rocket Center® in Huntsville, AL, have teamed to build and manage this traveling exhibit. Each of these organizations has years of quality experience in space subjects and exhibits, and strong reputations for excellence. Both NASA and the U.S. Space & Rocket Center® offer education and outreach programs to augment the exhibit including: lectures, astronaut visits, special events, Web-based teaching curriculum and student activities, videos and more.

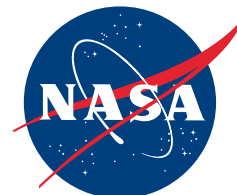


### General Specifications

- 4,000 square feet suggested floor space
- See following pages for specifications of individual exhibit components

### Special Notes

- This exhibit is suitable for indoor use only
- See Exhibits Web site below for required application form, loan agreement and contact information



# Space Laboratories: Science in Orbit

## Available Exhibit Features

### Walk-through Exhibits and Mock-ups:

- Mir Module (1:1)
- ISS Destiny Module (1:1)
- Space Laboratories Exhibit

### Models:

- Skylab (1:20)
- Life Support System (ECLSS) Racks (1:1)
- Mir (1:8)
- Space Shuttle (1:100)
- ISS Components (x3 - 1:10)
- International Space Station (1:100)
- Hubble Space Telescope (1:25)

### Artifacts:

- Skylab Instruments
- Spacelab Science Equipment

### Optional Artifacts:

- Full-scale Skylab Workshop
- Recovered Skylab Oxygen Tank

### DVD Presentations:

- International Space Station Videos (x2)
- Skylab Video
- Spacelab Video
- Hubble Space Telescope Video

### Additional Exhibit Hardware:

- Spacelab Lightbox
- Hubble Space Telescope Lightbox
- Space Camp® Graphics Wall

### Ceiling Banners:

- Title Graphics (x2)
- Title Graphics
- Skylab
- Mir
- Spacelab
- Hubble Space Telescope
- International Space Station

## Specifications

Please contact MSFC Exhibits for more information

See page 3

See page 4

Model and stand, approximately 2' x 2' x 7'

See page 5

See page 6

Model and stand, approximately 2' x 2' x 5'

Three display cases, approximately 3' x 3' x 5' each

Display case, approximately 4' x 4' x 6', standard electrical outlet required

Model only, approximately 2' x 3' x 2', exhibit site must provide stand or hang from ceiling

Please contact MSFC Exhibits for more information

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Included in ISS Destiny and Space Laboratories Exhibits

Rolling TV tower, approximately 3' x 3' x 7', standard electrical outlet required

Rolling TV tower, approximately 3' x 3' x 7', standard electrical outlet required

Please contact MSFC Exhibits for more information

Rolling, double-sided lightbox, approximately 2' x 6' x 6', standard electrical outlet required

Rolling, double-sided lightbox, approximately 2' x 6' x 6', standard electrical outlet required

Free-standing L-shaped wall with spinning NASA logo, approximately 8' x 8' x 12', standard electrical outlet required

Double-sided banners, 192" W x 96" H

Single-sided banner, 192" W x 96" H

Double-sided banner, 48" W x 96" H

Double-sided banner, 48" W x 96" H

Double-sided banner, 48" W x 96" H

Double-sided banner, 48" W x 96" H

Double-sided banner, 48" W x 96" H

*\* Note: No electrical requirements required unless otherwise specified*

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## Space Laboratories: Science in Orbit

This walk-through mock-up of the International Space Station's Destiny Laboratory features eight high-fidelity science racks, a short video about working in space, and information about the various disciplines of research conducted by the Space Station's on-orbit astronauts and ground-based science teams.



### General Specifications

Dimensions:

- 20' x 40'

Electrical Requirements:

- Two 115 Volt 20 Amp drops

Value for Insurance:

- \$100,000

### Special Notes

- A minimum ceiling height of 15' is required
- An 8' x 10' door into exhibit area is required
- This exhibit is suitable for indoor use only
- See Exhibits Web site below for required application form, loan agreement and contact information

### Assembly Specifications

Assembly Equipment Required:

- Forklift for crates
- Pallet jack
- Various handtools
- 10' ladder
- 8' ladder
- Power drills

Labor Required:

- Six people

Assembly Time:

- Approximately 12 hours

Assembly Notes:

- Two MSFC Exhibit Technicians and four laborers are required for setup of this exhibit
- Instructions for assembly/setup are included

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## Space Laboratories: Science in Orbit

The Space Laboratories exhibit spans the years of space science from Skylab, Spacelab, the International Space Station, and beyond. This exhibit includes text and graphics, four cabinets containing artifacts and models dealing with space science -- many of which are actual flight or training hardware -- and a 12-foot tall theater. This 12-foot theater, featuring an ISS video, may also be used as a stand-alone exhibit.



### General Specifications

Dimensions:

- 20' x 30' (full configuration)
- 10' x 10' (stand-alone theater configuration)

Electrical Requirements:

- One 115 Volt 20 Amp drop

Value for Insurance:

- \$10,000

### Special Notes

- A minimum ceiling height of 13' is required
- An 8' x 10' door into exhibit area is required
- This exhibit is suitable for indoor use only
- See Exhibits Web site below for required application form, loan agreement and contact information

### Assembly Specifications

Assembly Equipment Required:

- Forklift for crates
- Pallet jack
- Various handtools
- Two 12' ladders
- Power drills

Labor Required:

- Three people

Assembly Time:

- Approximately eight hours

Assembly Notes:

- One MSFC Exhibit Technician and two laborers are required for setup of this exhibit
- Instructions for assembly/setup are included

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## Space Laboratories: Science in Orbit

The Environmental Control and Life Support System (ECLSS) exhibit is a full-scale mock-up of the International Space Station's two water recycling racks, one air recycling rack, a Station bathroom, and one shower. Connected together, the five racks give visitors an idea of the processes and challenges of recycling waste in space.



### General Specifications

Dimensions:

- 4' x 20'

Electrical Requirements:

- One 115 Volt 20 Amp drop

Value for Insurance:

- \$75,000

### Special Notes

- Shipping crates are on rollers
- An 8' x 10' door into exhibit area is required
- This exhibit is suitable for indoor use only
- See Exhibits Web site below for required application form, loan agreement and contact information

### Assembly Specifications

Assembly Equipment Required:

- Forklift for crates
- Various handtools

Labor Required:

- Two people

Assembly Time:

- Approximately two hours

Assembly Notes:

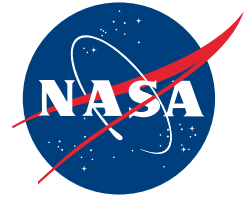
- One MSFC Exhibit Technician and one laborer are required for setup of this exhibit
- Instructions for assembly/setup are included



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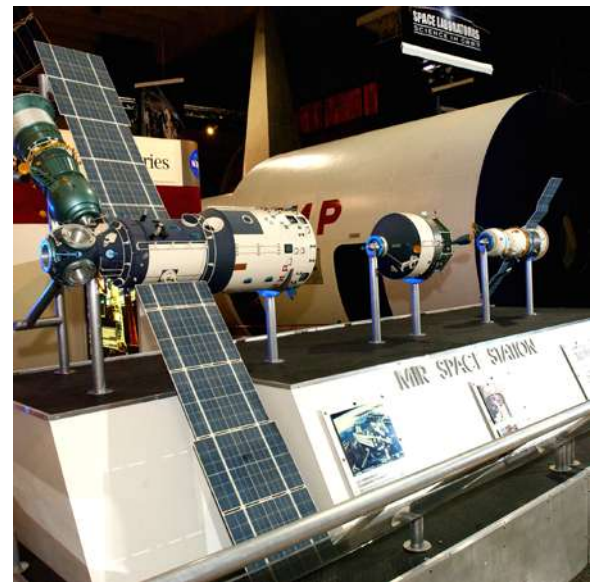
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## Space Laboratories: Science in Orbit

The 1:8 Scale Mir model is a self-contained model, mounted on a sturdy, mobile platform with guard rails to prevent guests from handling the model. The model displays the various modules of one of the first habitable, scientific laboratories in Earth's orbit.



### General Specifications

Dimensions:

- 10 x 20'

Electrical Requirements:

- None

Value for Insurance:

- \$75,000

### Special Notes

- A minimum ceiling height of 10' is required
- An 8' x 10' door into exhibit area is required
- This exhibit is suitable for indoor use only
- See Exhibits Web site below for required application form, loan agreement and contact information

### Assembly Specifications

Assembly Equipment Required:

- Forklift for crates
- Pallet jack
- Various handtools

Labor Required:

- Two people

Assembly Time:

- Approximately three hours

Assembly Notes:

- Two base sections are on casters
- Instructions for assembly/setup are included

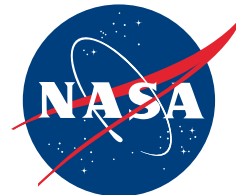
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